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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,058	01/20/2004	Feng-Chuan Lin	LINF3006/EM	6681

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EXAMINER

SMITH, BRADLEY

ART UNIT PAPER NUMBER

2891

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,058

Applicant(s)

LIN ET AL.

Examiner

Bradley K. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: search notes.

DETAILED ACTION

Claim Objections

1. Claim 7 is objected to because of the following informalities: there is no antecedent basis for "the W". Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 8, 9, 12 rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. (US 2004/021962). With regards to claims 1 and 12, Chen et al. disclose providing a semiconductor substrate; forming a plurality of gates on the surface of said substrate; applying a first insulating layer to cover said surface of said substrate and said gates selectively forming a plurality of gate contact windows at the locations of said gates selectively forming bit line contact windows in said first insulating layer, said bit line contact windows contacting said substrate; and filling said gate contact windows and said bit line contact windows with a conductive layer and forming a second insulation layer forming a second insulating layer of a predetermined pattern on the resultant structure after the filling step, wherein the conductive layer is exposed', and

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forming a metal layer on the exposed conductive layer (see figure 2J). With respect to claims 2 and 13, Chen et al. disclose the substrate is silicon. With respect to claim 3 and 14, Chen et al. disclose a nitride liner (54) and a BPSG insulating layer (64) (see paragraphs 0024 and 0030). With respect to claim 4, Chen et al. disclose a step of planarizing the first insulation layer. With respect to claim 5 and 15, Chen et al. disclose the formation of the bitline contact windows and the gate contact windows comprises etching. With respect to claim 8, Chen et al. disclose forming a second insulation layer forming a second insulating layer of a predetermined pattern on the resultant structure after the filling step, wherein the conductive layer is exposed', and forming a metal layer on the exposed conductive layer (see figures 2h-2j). With regards to claim 9 and 18, the second insulation layer comprises TEOS.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 7, 10, 11, 16, 17, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 2004/0219462) in view of Deboer et al. (US 2001/00045658). Chen et al. disclose a method of forming a gate and bitline contact structure as disclosed supra. However Chen et al. fails to disclose the formation of a

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tungsten plug and a Ti/TiN barrier layer. Whereas Deboer et al. disclose the use of a tungsten plug and a Ti/TiN barrier layer. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen et al. and Deboer because Deboer disclose that use of these the barrier layers and plugs is well known in the art (see paragraph 0041-0042).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is (571) 272-1884. The examiner can normally be reached on 10-6 Monday through Friday.

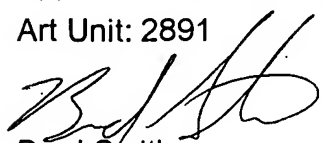
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Brad Smith', written over the printed name.

Brad Smith

Primary Examiner

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